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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,378	03/26/2004	Peter M. Michalakos	H0003879-3138	3068

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EXAMINER	
MERKLING, MATTHEW J	

ART UNIT	PAPER NUMBER
1764	

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08/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/811,378	MICHALAKOS ET AL.	
	Examiner	Art Unit	
	Matthew J. Merkling	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) *20-38* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/26/04 and 9/9/05*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-19) in the reply filed on 7/13/07 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

2. The examiner considered the international search report (dated 25 August 2005) and the written opinion (dated 25 August 2005) but lined through them as they are not published documents available to the public and will not be listed on the face of the patent if one is to be issued.

Claims Analysis

3. It is noted that claims 1-19 are recited as a "system" which does not clearly set forth which statutory category the invention belongs. It has been determined that the claims are directed to an apparatus and the appropriate principles for interpreting claims for that particular category of invention have been applied.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Michalakos (US 6,503,462).

Regarding claim 1, Michalakos discloses an air purifying system for an aircraft (col. 2 lines 61-64), comprising: a housing (5, Fig. 1) having an upstream end (10) and a downstream end (90);

a substrate disposed within said housing, said substrate and said housing adapted for the passage of an air stream therethrough (col. 3 lines 11-33);

a titania (col. 3 lines 19 and 24) catalyst support;

a first duct (10) affixed to said upstream end of said housing (5), said first duct coupled to an air intake unit for providing said air stream (col. 3 lines 11-14); and

a catalytic composition (60, 70) disposed on said titania catalyst support, wherein said catalytic composition comprises:

at least one silver-based component (col. 3 line 21), and

at least one palladium-based component (noble metals, col. 3 lines 16-17), wherein said catalytic composition is adapted for the catalytic removal of ozone (col. 3 line 15) from said air stream.

Furthermore, the claimed temperature of operation (100-500°F) is not considered to confer patentability to an apparatus claim as the manner of operating a device does not differentiate the apparatus from the prior art (See MPEP §2114).

Regarding claim 2, the claimed flowrate of air (1-500 lb/min) is not considered to confer patentability to an apparatus claim as the manner of operating a device does not differentiate the apparatus from the prior art (See MPEP §2114).

Regarding claim 4, Michalakos, as discussed in claim 1 above, further discloses an air compressor (fan, 50, col. 2 lines 53-60).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-14 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terui et al. (US 5,187,137) in view of Sakakibara (JP 03-151046 A) and Mirowsky et al. (US 2003/0150222).

Regarding claims 1, 3-8, 10, 11, 13, 16-19, Terui discloses an ozone removal system (see abstract) for an aircraft, comprising:

A catalyst that receives airflow (see abstract)

a substrate with a titania catalyst support (col. 4 lines 16-19) disposed on a surface of said substrate (col. 4 lines 20-23);

a catalytic composition of palladium oxide (col. 3 lines 8-16) disposed on said titania catalyst support.

Furthermore, the claimed temperature of operation (100-500°F) is not considered to confer patentability to an apparatus claim as the manner of operating a device does not differentiate the apparatus from the prior art (See MPEP §2114).

Terui fails to teach a silver based component consisting of silver.

Sakakibara also discloses a catalyst for the decomposition of ozone (see title).

Sakakibara teaches the synergistic effects of using silver with palladium in the service of decomposing ozone (see abstract). Sakakibara teaches the characteristics of both palladium and silver are involved in the reduction of ozone and also that the catalyst is excellent in both the performance of an initial period and durability (see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the silver of

Sakakibara to the palladium oxide and titania catalyst of Terui in order to harness the synergistic effects of palladium and silver in the decomposition of ozone and the excellence in performance during an initial period as well as long term.

While Terui discloses an ozone removal system that can be used on an aircraft, Terui fails to teach the catalyst disposed in a housing attached to a first duct coupled to an air intake unit with a compressor and a second duct, which feeds air to the interior of an aircraft on the downstream end of the catalyst.

Mirowsky also discloses an ozone removal system that is used on an aircraft (see abstract).

Mirowsky teaches a system comprising a compressor (blowers, fans) coupled to an air intake unit (237) connected to a first duct (43, upstream of 41) containing a filtering agent (41) and a second duct (43, downstream of 41) as a preferable way of taking ambient air from outside an aircraft and purifying it before it enters the aircraft cabin (paragraph 14).

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the compressor and the air intake unit coupled to a compressor, as in

Mirowsky, to the ozone removal system of Terui in order to preferably remove pollutants (ozone) of ambient air prior to entry in an aircraft cabin.

Furthermore, in claims 3, 6, 7, 8, 10, 13, 17 the claimed properties and performance of said catalyst composition in defined temperature ranges (deactivation properties, ozone reduction rates) are not disclosed by modified Terui, but are assumed to be the same as the claimed catalyst composition is identical to the catalyst composition taught by modified Terui (PdO and Ag on titania). Moreover, something which is old does not become patentable upon the discovery of a new property (see MPEP §2112).

Furthermore, the claimed temperature ranges of operation (100 - 500°F) are not considered to confer patentability to an apparatus (see MPEP §2114 and §2115).

Regarding claim 2, the claimed flowrate of air (1-500 lb/min) is not considered to confer patentability to an apparatus claim as the manner of operating a device does not differentiate the apparatus from the prior art (See MPEP §2114).

Regarding claim 9, the claimed intended use of said ozone removal system in a commercial passenger aircraft and the claimed manner of operating the ozone removal system (100 -

500°F) is not considered to confer patentability to an apparatus (see MPEP §2114 and §2115).

Regarding claims 12 and 14, modified Terui fails to teach the concentrations of titania, Pd and Ag in said ozone removal system. However, it was well known in the art at the time of the invention that the composition of catalyst in said ozone removal system had significant effect on the performance of said catalyst (see Sakakibara, abstract). Therefore, the claimed composition of the catalyst is not considered to confer patentability to the claim, as the composition is a variable that can be modified, as is taught by Sakakibara, to alter the performance. The composition of the catalyst would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed composition of the particles cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the composition of the catalyst of the modified Terui to obtain the desire performance (*In re Boesch*, 617 F. 2d. 272,205 USPQ 215 (CCPA 1980)). Since it has been held that where general conditions of the claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (*In re Aller*, 105 USPQ 223).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Terui et al. (US 5,187,137), Sakakibara (JP 03-151046 A) and Mirowsky et al. (US 2003/0150222) as applied to claim 10 above, and further in view of Thomson et al. (US 4,967,565).

Regarding claim 15, modified Terui, as discussed in claim 10 above, teaches a system for the treatment of cabin air usable on an aircraft, but fails to explicitly disclose an air stream provided from a gas turbine engine.

Thomson also discloses a system (Environmental Control System (ECS)) for the treatment of cabin air on an aircraft (see abstract).

Thomson teaches that it is well known and preferable to operate the ECS on a supply of air fed from a bleed from a turbine engine of an aircraft (col. 1 lines 16-31).

It would have been obvious to one of ordinary skill in the art at the time of the invention to supply air from a bleed of a gas turbine engine, as in Thomson, to the ozone

removal system of modified Terui as a preferable route of supplying air to ozone removal catalyst.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Merkling whose telephone number is (571) 272-9813. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MM

MJM

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